REMARKS

This application contains claims 1-7, 9-18, 20-31 and 33-36. Claims 5, 17 and 29 have been canceled without prejudice. Claims 1, 13, 20 and 25 are hereby amended. No new matter has been added. Reconsideration is respectfully requested.

Applicant thanks Examiners Mitchell and Chaki for the courtesy of a personal interview with Applicant's representative, Daniel Kligler (Reg. No. 41,120), held in the USPTO on September 26. At the interview, Applicant's representative pointed out the distinctions between the present invention and Gaboury (U.S. Patent 5,481,717). It was noted in particular that Gaboury's finite state machine (FSM), shown in "completed form" in Fig. 8, still contains references to variables (V1, V2, ..., and U1, U2, ...) from the stack program of Fig. 2, in distinction to claim 1 of the present patent application, which recites replacing references to the program variables with non-deterministic choices. It was agreed that adding to claim 1 the limitation of claim 5, that the references to the program variables are eliminated from the next-state functions, would distinguish the present invention over Gaboury. The Examiners agreed to enter and consider this

amendment notwithstanding the present final rejection of the claims.

Claims 1-11, 13-23 and 25-35 were rejected under 35 U.S.C. 102(b) over Gaboury, while claims 12, 24 and 36 were rejected under 35 U.S.C. 103(a) over Gaboury in view of prior art techniques described in the Background section of the present patent application. As agreed in the interview, Applicant has amended independent claims 1, 13 and 25 to incorporate the limitations of claims 5, 17 and 29, which are now canceled, in order to clarify the distinction of the present invention over Gaboury. Claim 20 has also been amended to correct an error in dependency.

Claim 1 recites a method for verifying software source code that includes the following steps:

1. The source code is processed to derive a set of next-state functions representing the control flow of the code.
2. References to the program variables in the next-state functions are replaced with non-deterministic choices.
3. The next-state functions (with the non-deterministic choices) are restricted to produce a finite-state model of the control flow.
4. The finite-state model is verified.

The claim has been amended to clarify that the references to the program variables are eliminated from the next-state functions, so that the finite-state model is substantially independent of the data values of the program variables.

Gaboury describes a method for program verification by comparing parametrized logic programs (abstract). Gaboury illustrates his method with reference to a logic program defining the operation of a stack (col. 5, lines 48-50, and Fig. 2). As noted above, the program in Fig. 2 includes variables V1, V2, …, and U1, U2, …. Gaboury converts the logic program to a canonical FSM representation (col. 7, lines 59-60), resulting in a "completed form" of the program that is shown in Fig. 8 (col. 8, lines 43-45). This completed form contains both the program variables V1, V2, …, U1, U2, …, and new variables A1, A2, …. It is thus clear from Fig. 8 that although Gaboury adds certain new variables to the FSM, the references to the program variables are <u>not</u> eliminated, in distinction to the limitations of amended claim 1.

In Gaboury's specification, he refers to the new variables as "V_i, i=1…n" (col. 8, lines 25-26). This reference appears to be a typographical error for two reasons: (1) In Fig. 2 and in earlier sections of the specification (such as col. 5, line 20), Gaboury uses V_1,…V_n to refer to the variables

in the logic program. (2) Gaboury makes no reference in the text to variables A1, A2, ….. The only reasonable conclusion in this case is that Gaboury intended to refer to the new variables as "A_i, i=1…n," and Gaboury's FSM hence includes both the new variables and the original program variables.

Thus, as agreed in the interview, Gaboury fails to teach all the limitations of claim 1 as amended, and claim 1 is therefore patentable over the cited art. In view of the patentability of claim 1, claims 2-4, 6, 7 and 9-12, which depend from claim 1, are also believed to be patentable.

Independent claims 13 and 25 respectively recite apparatus and a computer software product that operate on principles similar to the method of claim 1. These claims were rejected on the same grounds as claim 1 and have been amended in like manner. Therefore, for the reasons stated above, claims 13 and 25, as amended, are believed to be patentable over the cited art, as are dependent claims 14-16, 18, 20-24, 26-28, 30, 31 and 33-36.

Applicant believes the amendments and remarks presented hereinabove to be fully responsive to all of the grounds of rejection raised by the Examiner. In view of these amendments and remarks, Applicant respectfully submits that

all of the claims in the present application are in order for allowance. Notice to this effect is hereby requested.

If the Examiner has any questions he is invited to contact the undersigned at 202-628-5197.

Respectfully submitted,

BROWDY AND NEIMARK, P.L.L.C.
Attorneys for Applicant

By 
Ronni S. Jillions
Registration No. 31,979

RSJ:tbs
Telephone No.: (202) 628-5197
Facsimile No.: (202) 737-3528
G:\BN\C\colb\Beer4\PTO\2005Oct20 AMD.doc